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GROWING VEGETABLES IN THE PRAIRIE GARDEN

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Sweet Spanish Onions Grown from Transplants in a Prairie Garden

CANADA DEPARTMENT OF AGRICULTURE

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Contents

	PAGE
Introduction	5
Salad vegetables	
—celery, lettuce	5
Cole vegetables	
—broccoli, Brussels sprouts, cabbage, cauliflower	6
Root and bulb vegetables	
—carrot, parsnip, rutabaga, onion (garlic)	9
Leguminous vegetables	
—pea, beans, kidney bean, broad bean, pole bean	11
Tabulated information on growing vegetables	12
Solanaceous vegetables	
—tomato, husk tomato, pepper, potato	14
Cucurbit vegetables	
—cucumber, muskmelon and watermelon, pumpkin, squash	18
Sweet corn and popcorn	19
Savory herbs	
—peppergrass, dill, sweet marjoram, parsley, sage, summer savory ..	20
Perennial vegetables	
—asparagus, rhubarb, chive, horse radish	20
Flea beetle and root maggot	23

GROWING VEGETABLES IN THE PRAIRIE GARDEN

Introduction

This publication is designed to help home gardeners in the Prairie Provinces to grow vegetables successfully. Those engaged in commercial vegetable production on a limited scale may also find it useful. Much of the information is presented in concise form in Tables 1 and 2. However, some gardening practices for certain vegetables cannot be given adequately in tabular form and these are therefore presented as additional information and in illustrations. Recommended vegetable varieties are not listed in this publication because these may vary from one locality to another and from year to year. The gardener is advised to obtain a revised list of recommended varieties each year from the nearest experimental farm or agricultural representative.

The highly desirable practice of irrigating the vegetable garden is discussed in Publication 851, "Irrigating the Prairie Home Garden," available free of charge from the nearest experimental farm. Information on the control of garden insects and diseases is also available free of charge from the nearest provincial department of agriculture. However, control methods for the flea beetle and the onion maggot are included in this publication. Both insects are very common, difficult to detect, and usually present a serious problem in vegetable production early in the season. Before the gardener is aware of their presence, flea beetles in large numbers may quickly and completely destroy young seedlings. Onion maggots, also, may do much damage to small onion seedlings long before there is any visible evidence of their presence.

Salad Vegetables

Celery

Celery grows best on muck and peat land although excellent crops have been produced on upland prairie soils with irrigation. A rich and friable soil is essential for best results.

Celery requires a long growing season and must be grown indoors for 8 to 10 weeks before it is transplanted to the garden. The seed germinates slowly and should be planted early (Table 1). It is small and should be covered sparingly with soil. A sheet of glass placed over the box in which the seed is sown helps to maintain humidity. After transplanting to other boxes or jiffy pots the plants are placed in a hotbed. In addition to watering regularly, the hotbed should be ventilated whenever the weather is mild. However, the temperature around the plants should not be allowed to drop to 40° F. Exposure to cold in the early stages will cause seedstalks to form later in summer, making the plants unfit for use.



FIGURE 1—Transplanting celery. The plants are set six inches apart and the soil is firmed against the roots by tramping lightly.

Many soils in the Prairie Provinces are deficient in available boron, a condition that causes stem cracking and general unthriftiness in celery. If a deficiency of boron has been demonstrated, the condition may be corrected by applying borax to the soil prior to planting at the rate of one ounce to 250 square feet. The borax is thoroughly mixed with a quart of powdery soil and applied evenly over the soil surface.

Lettuce

Lettuce is a cool season vegetable and usually develops rapidly. Rich, friable soil and an ample supply of moisture ensure good results. Four main types of lettuce are available, namely, leaf lettuce, butter-head, crisp-head, and cos lettuce. Leaf lettuce is valued for its earliness; butter-head lettuce for its soft head texture; crisp-head lettuce for its cabbage-like crispness; and cos lettuce for its distinctive flavor. In the Prairie Provinces, leaf and crisp-head lettuce are most successful because of their marked adaptability to dry and hot weather conditions.

Cole Vegetables

Broccoli

There are two types of broccoli—heading or late broccoli resembling cauliflower, and sprouting broccoli which produces small to medium-size, dark green heads. The cauliflower type of broccoli is grown mainly in temperate climates where the crop matures in late fall and winter. Sprouting

TABLE 1.—VEGETABLES STARTED INDOORS FOR TRANSPLANTING TO THE GARDEN

Kind of Vegetable	Seeding Date		Transplant to Containers ¹ Days after Germination	Transplant to Garden—Date	Plant Spacing in Garden	
					In Rows	Between Rows
Cabbage and Cauliflower . . .	April	20	5	May 25 to 30	inches 18	feet 2½
Celery ²	March	25	14	June 5 to 10	6	3½
Cucumber and Melon ³	April	20	—	June 10 to 15	12	5
Lettuce (heading type)	April	15	7	May 20 to 25	12	2
Onion (Sweet Spanish type) . .	February	25	14	May 20 to 25	4	1½
Pepper and Eggplant	March	25	10	June 5 to 10	12	2
Potato for sprouting ⁴	April	1	—	May 1 to 10	12	3
Tomato	April	15	7	June 1 to 10	24	3½

NOTES:

¹ Transplants are spaced 2 inches each way in boxes. It is preferable to grow plants individually in containers such as 2-inch clay pots, jiffy pots, etc. A temperature of 65 to 70°F is best for growing stocky plants for setting out.

² Celery may be harvested for immediate use as soon as the plants are 10 inches tall. For storage it is harvested before frost in fall. The plants are dug and replanted to a sand bed on the basement floor. One third of the tops are sheared off. Storage temperature of 40°F is best.

³ Cucumbers and melons should be seeded in jiffy pots or pressed soil blocks for best results.

⁴ Potato tubers 2 inches in diameter or 2 ounces in weight are set in shallow boxes without covering. They are placed in full light, temperature 65 to 70°F, and watered occasionally.

broccoli, easily grown in the Prairie Provinces, produces smallish heads in the axils of the leaves. Once harvesting begins the heads continue to mature for six weeks to two months. The heads are composite clusters of flower buds. To be of value for table use they must be cut before the buds open. The methods of growing broccoli are similar to those for cabbage and cauliflower.

Brussels sprouts

Brussels sprouts are grown for the small cabbage-like sprouts produced in the axils of the leaves. The sprouts must be firm and about the size of a large walnut to be of good quality. They develop progressively from the base to the top of the plant. This vegetable is seldom grown satisfactorily in the Prairie Provinces. It requires a cool climate and ample moisture. The plants are produced and grown in the garden in the same way as cabbage.

Cabbage

Cabbage that has headed tends to split following a heavy rainfall. This may be prevented by twisting the heads sharply, breaking a portion of the roots but leaving enough intact to keep the plant from wilting.

Cabbage plants that produce an early crop may be induced to develop a second set of heads by fall. When the first crop is cut a good cluster of foliage must be left on the remaining stem. The second set of heads develops from the buds in the axils of the leaves. The soil around the plants should be watered thoroughly as soon as the first crop is cut. This stimulates prompt growth for the second crop. When well grown, 3 to 5 secondary heads ranging from $1\frac{1}{2}$ to 5 inches in diameter are produced per plant. They are normally firm, of excellent quality, and are ready for use in September.

Cauliflower

Special climatic conditions are required for growing good cauliflower. Cool weather and ample moisture are essential. A heavy loam soil rather than a light sandy soil is best although most prairie soils will produce good cauliflower provided they have adequate moisture.

Generally the methods for growing cauliflower are similar to those for cabbage. However, cauliflower must be started indoors and transplanted to the garden to produce a crop. For planting indoors sterilized soil or vermiculite should be used to prevent destruction of the small seedlings by the damping-off fungus. Young cauliflower plants are very susceptible to this disease. Soil can be sterilized by baking it in a hot oven for one-half hour.

Cauliflower heads should be pure white for table use. Blanching is achieved by tying the outer leaves of the plant together over the head with twine. This is done when the curd is first visible as a "white button" among the young leaves in the center of the plant. Cauliflower may be harvested when the full-sized heads cause the tied-up leaves to bulge.



FIGURE 2—The "white button" stage of cauliflower head development when the top leaves of the plant are tied together to keep the expanding head as white as possible.



FIGURE 3—In foreground a cauliflower plant tied up to encourage blanching as the head develops.

Root and Bulb Vegetables

Carrot

A light loam soil produces the straightest carrot roots. Land for carrot production should be manured one year before the crop is grown. Freshly manured soil often produces forked and rough roots.

Carrots $\frac{3}{4}$ to 1 inch in diameter have the best quality. This size is most desirable for fresh use, canning or storage. The roots should be dug on a dry, cloudy day. Overheating in the sun encourages rapid wilting and storage deterioration. The carrot tops, like those of beets, should be cut off close to the root in preparation for storage in sawdust.

Parsnip

Parsnips require a long growing season. Since the seed germinates slowly, parsnips should be the first vegetable sown in the spring. Seeding may also be done in the fall before freeze-up. The seed is papery and light and therefore a quiet day is best for sowing. Dropping a few radish seeds in the parsnip rows is a good practice because the quickly germinating radishes will mark the rows until the slow-sprouting parsnip seeds begin to grow.

Hardiness of the roots is a notable characteristic of parsnips. They can be left in the garden all winter without damage. Roots for storage are harvested just before freeze-up. Some people consider that freezing the roots improves quality.

Rutabaga

The rutabaga requires a cool season with ample rainfall and a rich moisture-retentive soil to develop roots of good quality. Alkali soil should be avoided since it tends to make the roots bitter. Frost improves the flavor therefore the roots should be harvested in late fall after several light frosts.

Onion

The onion requires a long growing season. A rich heavy loam is best, and a firm soil promotes good bulb production and yield. Onions can be thinned most effectively when the soil is moist. In moist soil the roots yield easily to hand pulling but when the soil is dry the plants often break off and the roots grow again.



FIGURE 4—Thinning onions. Moist soil and a hand digging tool help to remove the onion seedling when thinning. In dry soil the top breaks easily and the root grows again.

When onion bulbs mature satisfactorily the tops will fall over naturally by the third week in August. Forcing maturity by tramping the tops encourages neck rot disease and may result in heavy losses of bulbs in storage. Harvesting must be done shortly before the first fall frost. The bulbs should be pulled and spread thinly on the ground to dry in the sun or they may be taken into a ventilated room and spread to cure on slatted shelves. They should be stored on shelves in a dry place at a temperature of 38 to 40° F.

Onions from sets—Onion greens can be grown early in the season by planting sets or small bulbs. The latter may be purchased at most vegetable seed counters. Sets may also be grown by sowing the onion seed thickly and not thinning the plants. At least one hundred seeds should be sown per foot of row planted $\frac{3}{4}$ inch deep. These are harvested in early August when the bulblets are approximately $\frac{1}{4}$ inch in diameter. This is considered the best size for sets. Although onion sets are used primarily for producing greens they may also grow to maturity and produce large bulbs. These are hard, extremely pungent, and keep well in storage.

Sweet Spanish onions—Bulbs weighing 2½ pounds and over can be grown from transplants. Timely seeding is important in producing good transplants (Table 1). When transferring these to the garden, as much as possible of the root system should be left attached to the plants. The point where the roots are attached should be set only slightly deeper than the soil level. Fertilizing once each week with 1 teaspoonful 16-20-0 ammonium phosphate dissolved in 1 gallon of water and applying 1 cup of solution per 3 feet of row during June

and July helps to produce large bulbs. Sweet Spanish onions grown from transplants do not keep well and should be used as soon as possible after harvesting.

Multiplier onions—This type of onion is used principally for producing onion greens. The bulbs grow in clusters that should be divided at planting time and planted singly. The mature bulbs are excellent keepers and extremely pungent.

Garlic—The garlic bulb is composed of pink segments known as cloves. These are separated for planting in the spring and set out singly 2 inches apart, 1 inch deep, and in rows spaced 1½ feet apart. The bulbs are harvested before frost, cured, and stored in much the same manner as onions.

Leguminous Vegetables

Pea

There are two general groups of garden peas, one group has a smooth and the other a wrinkled seed surface. The smooth-seeded varieties are hardy and may be seeded early even in cold soil without danger of the seed rotting. The wrinkled seeds are not so hardy but have superior flavor and quality. A third and distinctive group of peas is known as the sugar or edible-podded pea. The pods and peas are used without shelling. The flowers of these peas are purple and the pods are used for cooking when the peas are half to three-quarters grown.

Peas should be sown early in spring, usually during the first week in May. Successive weekly seedings for the remainder of the month will provide peas for the table during most of early summer. Pea seed germinates poorly in hot weather. If it is to be sown under these conditions the seed should be first soaked in water, rolled in a damp cloth, and placed in a cool room at 35 to 40° F to germinate slightly before it is planted. Where this method is used it is important to soak the soil thoroughly with water after the seed is planted in the garden.

When harvesting green peas the pods should be picked without severely disturbing the vines. Forcefully tearing off the pods may injure the plants and thus restrict further pod production. The best method is to hold the plant in one hand, where the pod is attached, and pull off the pod with the other hand. This will leave the plant in good condition for continuous bearing.

Beans

This important group of plants comprises the dwarf kidney bean, broad bean, pole bean, and edible soybean. All, except the broad bean, are warm-weather crops and sensitive to frost.

Bush Bean

The bush bean is variously known as snap bean, French, or Haricot bean. The succulent pods are used for food. The two main groups, based on pod color, are the green and the wax or yellow pod. Both groups are used extensively although the green-podded group is probably the more popular. Bush beans have either white or colored seeds. The latter are undesirable for canning since they may impart an objectionable tinge of color to the canned product even when still immature.

TABLE. 2—VEGETABLES SOW

Kind of Vegetable	Purpose of Vegetable	Seed for 50 Feet	Seeding Date	Depth of Seeding	When to Thin Plants	Row
Beet.....	(a) Summer use	$\frac{1}{2}$ oz.	May 5 to 10	$\frac{3}{4}$ in.	At $1\frac{1}{2}$ inch height	3 in
	(b) Winter storage	$\frac{1}{2}$ oz.	June 1 to 5	$\frac{3}{4}$ in.	At $1\frac{1}{2}$ inch height	3 in
Bean—kidney.....	Summer use	4 oz.	May 25	$1\frac{1}{2}$ in.	At 2 inch height	3 in
—pole (runner).....	Summer use	6 oz.	May 25	2 in.	At 2 inch height	4 t
—broad.....	Summer use	6 oz.	May 15	$2\frac{1}{2}$ in.	—	4 in
—soybean.....	General use	4 oz.	May 15	$1\frac{1}{2}$ in.	—	3 in
Cabbage.....	Main crop	1 pkt.	May 5 to 10	$\frac{1}{2}$ in.	At $1\frac{1}{2}$ inch height	18 in
Chinese Cabbage.....	Fall use	1 pkt.	August 1	$\frac{1}{2}$ in.	At 2 inch height	12 in
Carrot.....	(a) Summer use...	1 pkt.	May 5 to 10	$\frac{1}{2}$ in.	At $1\frac{1}{2}$ inch height	2 in
	(b) Winter storage	1 pkt.	June 1 to 5	$\frac{1}{2}$ in.	At $1\frac{1}{2}$ inch height	2 in
Cucumber.....	Summer use.....	1 pkt.	May 25	$\frac{3}{4}$ in.	At 4 leaf stage	12 in
Herbs.....	General use	1 pkt.	May 10	$\frac{1}{2}$ in.	—	1 in
Kohlrabi.....	Summer use	1 pkt.	May 5 to 10	$\frac{1}{2}$ in.	At 2 inch height	3 in
Lettuce (leaf).....	Summer use	1 pkt.	May 1	$\frac{1}{2}$ to $\frac{3}{4}$ in.	At 1 inch height	6 in
Muskmelon.....	Summer use	1 pkt.	May 25	$\frac{3}{4}$ in.	At 4 leaf stage	12 in
Onion—sets.....	Summer use.....	2 oz.	May 1	1 in.	—	2 in
—seed.....	Main crop	1 pkt.	May 1	$\frac{1}{2}$ in.	At 3 inch height	3 in
Parsnip.....	Winter storage	1 pkt.	April 20 to 30	$\frac{1}{2}$ in.	At $1\frac{1}{2}$ inch height	3 in
Pea.....	Summer use	8 oz.	May 1 to 10	$1\frac{1}{2}$ in.	—	$1\frac{1}{2}$
Popcorn.....	General use	1 oz.	May 15 to 20	$1\frac{1}{2}$ in.	At 6 to 10 inch height	12 in
Potato.....	Main crop	48 oz.	May 10 to 20	$2\frac{1}{2}$ in.	—	12 in
Pumpkin.....	Winter use	1 pkt.	May 30	$1\frac{1}{2}$ in.	At 4 leaf stage	24 in
Radish.....	Summer use	1 pkt.	May 5 to 10	1 in.	At 1 inch height	1 in
Rutabaga.....	Winter storage	1 pkt.	June 1 to 5	$\frac{1}{2}$ in.	At 1 inch height	6 in
Spinach.....	Summer use	1 pkt.	May 1	$\frac{1}{2}$ to $\frac{3}{4}$ in.	At 1 inch height	6 in
Squash—summer.....	Summer use	1 pkt.	May 30	$1\frac{1}{2}$ in.	At 4 leaf stage	24 in
—winter.....	Winter use	1 pkt.	May 30	$1\frac{1}{2}$ in.	At 4 leaf stage	24 in
Sweet Corn.....	Summer use	1 oz.	May 15 to 20	$1\frac{1}{2}$ in.	At 6 to 10 inch height	12 in
Swiss Chard.....	Summer use	$\frac{1}{2}$ oz.	May 10 to 15	$\frac{3}{4}$ in.	At 2 inch height	12 in
Turnip.....	Summer use	1 pkt.	May 5 to 10	$\frac{1}{2}$ in.	At 1 inch height	3 in

NOTE: ¹ Thinning plants in the row should be progressive; finally at distance specified for the mature plants.

² Onion bulbs should be thoroughly cured and dried.

³ Squash and pumpkin for winter storage must be cured at 65 to 70°F for 14 days and then at 40°F for the

ES SOWN IN THE GARDEN

Plant Spacing			Best Harvesting Stage	Storage	
	In Rows ¹	Between Rows		Type	Temperature
	3 in.	2 feet	When roots 2 inches in diameter.....	—	
	3 in.	2 feet	When roots 2 inches in diameter.....	Buried in sawdust	36°F
	3 in.	2 feet	When pods $\frac{3}{4}$ to full size.....	—	
	4 to 6 in.	4 feet	When pods $\frac{3}{4}$ to full size.....	—	
	4 in.	3 feet	When beans $\frac{3}{4}$ size.....	—	
	3 in.	2 feet	When beans full size.....	—	
	18 in.	2½ feet	When head is firm.....	Shelf	40°F
	12 in.	2½ feet	When head is firm.....	Shelf	40°F
	2 in.	1½ feet	When root 1½ inch diameter at top.....	—	
	2 in.	1½ feet	When root 1½ inch diameter at top.....	Buried in sawdust	36°F
	12 in.	5 feet	When cucumbers $\frac{3}{4}$ to full grown.....	—	
	1 in.	2 feet	When partly in flower and fruit.....	Dry hanging position	
	3 in.	1½ feet	When stem 2 inches in diameter.....	—	
	6 in.	1½ feet	When plant 5 inches high.....	—	
	12 in.	5 feet	When fully mature.....	—	
	2 in.	1½ feet	When greens are 3 inches tall.....	—	
	3 in.	1½ feet	Before frost.....	Shelf ²	40°F
	3 in.	2 feet	After light frost.....	Buried in sawdust	36°F
	1½ in.	2 feet	When peas attain full size.....	—	
ight	12 in.	3 feet	When seed is mature and dry.....	—	
	12 in.	3 feet	At maturity.....	Open bin	40°F
	24 in.	10 feet	When rind is hard.....	Shelf ³	40°F
	1 inch	1½ feet	When roots as large as thumbnail.....	—	
	6 in.	2 feet	After light frost.....	Open bin	40°F
	6 in.	1½ feet	When plant 10 inches high.....	—	
	24 in.	6 feet	When fruits 4 to 6 inches long.....	—	
	24 in.	10 feet	When rind is hard.....	Shelf	40°F
igh	12 in.	3 feet	When kernels at ear tip pale yellow.....	—	
	12 in.	2 feet	When plant 6 inches high.....	—	
	3 in.	2 feet	When root 2 inches diameter.....	—	

gressive; 1 to 2 inches at first, 5 to 6 inches 10 days later, ure plants.

and dried before being placed in storage.

must be well ripened. They should be held in dry storage F for the remainder of the storage period.

Broad Bean

Broad beans can be grown successfully only in a moist and cool climate. In some seasons they grow reasonably well in the Prairie Provinces but generally the weather is not favorable for successful production. The broad bean is harvested when the beans in the pods are almost full grown. They are shelled and cooked much like green peas.

Pole Bean

Two types of pole beans are in general use. The Scarlet Runner type is commonly grown as an ornamental plant for covering fences, and its pods, which have a rough surface and measure 1 inch wide and 10 to 12 inches long, are preferred for their rich flavor. Gathered before they attain full size, the pods are stringless and tasty when cooked. The second type of pole bean is a climbing form of kidney bean. This type has shown considerable resistance to some diseases common to the kidney bean. The pods of the kidney-type pole bean are stringless and of excellent quality. Blue Lake is the main variety.

Solanaceous Vegetables

Tomato

The tomato is a popular and important home garden vegetable. Varieties are now available that are sufficiently early to ripen fruit in most parts of the Prairie Provinces and some areas of the Northwest Territories.

The tomato is a warm-weather vegetable and is tender to frost. The plant should be started indoors in spring to afford a long growing season. Shallow boxes of sandy soil are satisfactory to start the plants. The seeds should be sown thinly and covered with $\frac{1}{8}$ inch of soil. They should then be watered and placed in a warm location at a temperature of 65 to 70°F. Shading the planted seeds with newspaper will reduce evaporation and encourage germination. The covering must be removed as soon as the seedlings emerge. When



FIGURE 5—From left to right pressed soil block, jiffy pot and clay pot.

the seedlings are approximately $1\frac{1}{2}$ inches high they should be transplanted into other boxes and spaced 2 inches each way. They may be transplanted to the garden in early June. A temperature of 65°F appears to develop the best plants. Excellent results can be obtained with soil blocks, jiffy pots, plant bands, or tin cans instead of boxes. These are used for individual plants and have particular value in producing sturdy plant specimens. They also ensure minimum root damage during transplanting.

Covering tomato plants with paper protectors after transplanting is advantageous in the event of persistent late spring frosts and strong winds. Success with protectors depends much on timely and adequate ventilation. An opening 2 inches in diameter should be cut in the side of the paper wall as soon as the weather warms up, that is when the outside temperature approaches 75°F or higher. Ultimately, as the summer weather becomes established and as the plants fill the protectors, provision must be made for the plants to grow out into the open. The ventilation openings should be enlarged a little each day until the tomato plant can emerge. This serves to accustom the plant gradually to the outdoor temperatures. The paper protector is left around the base of the plant for the remainder of the season.

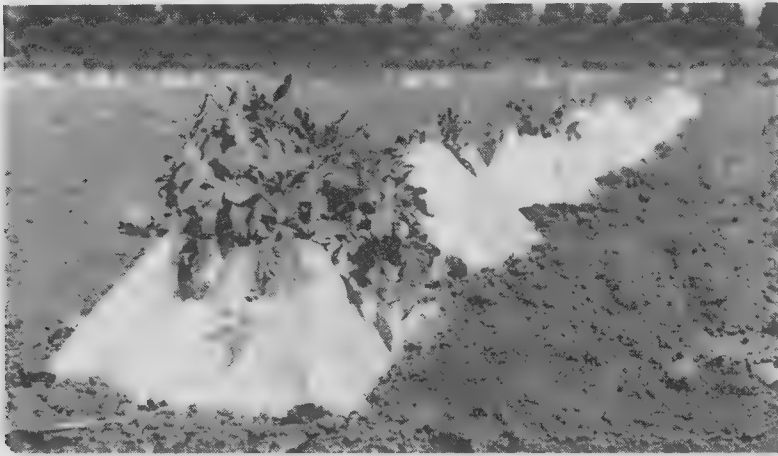


FIGURE 6—The hotent is left in place indefinitely and the plant is permitted to emerge through a hole in the top.

The staking type of tomato grows continuously and produces new stems and foliage all season in contrast with the non-staking or bush tomato which practically stops growing when the crop of fruit is set. Thus, staking varieties allowed to grow unrestricted will develop large, spreading plants and late-ripening fruits. However, they can be induced to produce ripe fruit in desirable quantity with timely pruning and staking. The plants should be spaced 2 feet apart in the garden and should be staked soon after they are transplanted. Pruning consists of pinching out all side branches from the axils of the leaves on the main stem. This is done at least once each week during the period of active plant growth in June and July. The main stem is tied securely to the stake with a soft cord, allowing sufficient slack to provide room for the stem to grow freely.

Non-staking or bush tomatoes require no special plant training but should be permitted full plant development all season. In some localities where tomatoes tend to ripen slowly, ripening is sometimes forced by trimming off most of the stem and foliage growth over the fruit clusters. This practice is of doubtful value. It is much better to use adapted, early ripening varieties.

At the Morden Experimental Farm a method of growing tomato plants has been developed that has given excellent results in simplifying the production of transplants. The seed is sown in pots or boxes about April 15 and seedlings are allowed to grow in these containers in a rather crowded condition for approximately one month when they are transplanted to the garden about May 15. Hotkaps or hotents, (paper plant protectors) are placed over the plants as soon as they are set out. If there is a risk of frost a second protector, preferably a larger hotent, is placed over the first. This type of covering has shielded plants from 7 to 8 degrees of frost of short duration. Ventilation must be provided as previously described. The method has resulted in the production of 30 per cent more ripe fruit than the customary method of growing plants in boxes in the greenhouse from April 15 to transplanting time on June 1.



FIGURE 7—Seedlings such as these transplanted to the garden on May 15 and then covered with a hotkap or hotent for two weeks have produced more ripe tomatoes than plants grown in flats for six weeks by usual methods and transplanted to the garden on June 1.

Husk Tomato

In parts of the Prairie Provinces the husk tomato is used to some extent for preserves and as the body-producing constituent of jams. There are a number of species of *Physalis*, and they vary in size and color of fruit. A large, yellow-fruited type that ripens early is available to gardeners in the Prairie Provinces. Husk tomatoes have a transparent paper-like covering.

The seed of the husk tomato can be planted in the garden in favored localities of the prairies. Generally, it should be sown indoors and the plants grown by the same methods as used for tomatoes. The fruit of the husk tomato is harvested when it is fully mature.

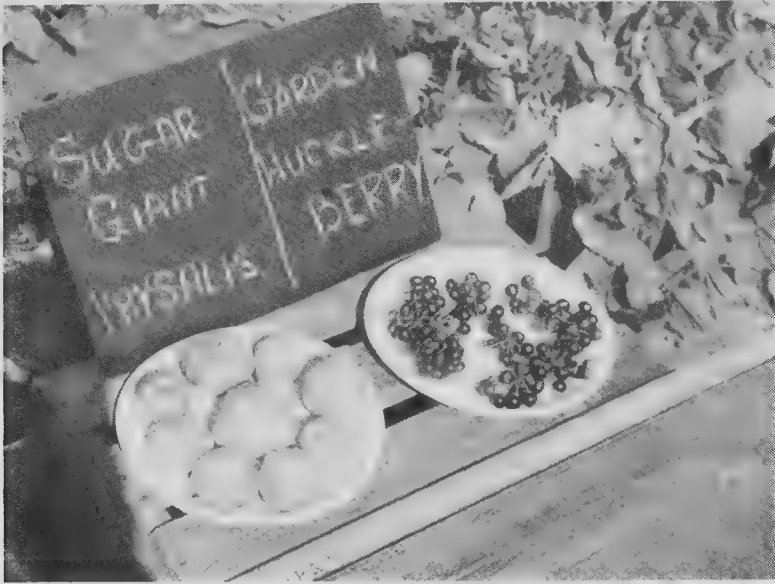


FIGURE 8—Physalis or husk tomato and garden huckleberry are often used for making jam.

Pepper and Eggplant

Of the peppers, the sweet green pepper is probably the best known, but there are many types varying in pungency, fruit shape, size and color. Two groups of peppers, the sweet and the hot, which ripen red or yellow colored fruits, are most popular in the Prairie Provinces. A long season, supplemented by starting the plants indoors, is necessary to grow peppers successfully in the prairie garden. Sandy loam soil and a good windbreak favor their production. The eggplant is not so hardy as the peppers. Cultural methods are similar.

Potato

A cool climate and consistently moist soil help to give high yields of potatoes of good quality. However, satisfactory results are obtained with potatoes in most years in the Prairie Provinces. Certain varieties such as Netted Gem produce consistently good results only when irrigated. Because of the danger of virus disease infection in table potatoes, the gardener is advised to obtain certified seed at least every two or three years.

Early potatoes to be ready for use on about July 1, must be given special sprouting treatment prior to planting early in May. Tubers approximately 2½ inches in diameter should be selected, and placed in a warm and well-lighted room, about six weeks prior to planting time, with the ends containing the many eyes uppermost. Strong, purplish sprouts approximately ½ inch

long should develop. Do not cut the tubers. Plant them in the usual way about 2 inches deep, being careful to protect the sprouts. Should frost destroy plants that are not over 4 inches tall, new growth that will produce a crop almost as quickly as if no damage had occurred can be expected.

For the main crop of potatoes, whole tubers $2\frac{1}{2}$ inches in diameter are best for planting. Larger tubers cut into blocky sets approximately 2 ounces in weight and having 2 or 3 eyes per set are satisfactory for use after the soil has warmed up. Cutting should be done just before planting. Seed treatment before planting is a good practice to control tuber-borne diseases such as scab and rhizoctonia. Commercial seed treating preparations are available and give satisfactory results when used according to directions on the container. Potatoes are planted $2\frac{1}{2}$ to 3 inches deep on most soils. The need for commercial fertilizers on potatoes in the garden is generally not considered too important because of normally good soil fertility. If manure is used it should be applied to the potato ground in the year previous to planting. Fresh manure tends to encourage scab disease. Hilling the potato plants in mid-August is a good method of protecting the tubers from sun and frost. Irrigation, if available, should begin soon after the new tubers begin to form, which normally takes place when approximately two thirds of the plants are in flower. The amount of water to apply will depend on the soil type and weather conditions. Soil at the 3-inch depth should be sufficiently moist that balls of soil formed with gentle hand pressure will stay whole when the pressure is released.

Potatoes should be dry at harvest. In a wet fall they should be placed in piles 2 feet high in a dry place for two weeks prior to storage. Bin storage in a basement at a temperature of 40°F is best.

Cucurbit Vegetables

Cucumbers

In districts where the weather is unfavorable for ordinary methods of planting plant protectors are useful. Waxed tent paper has been used successfully. The seed is sown in rows, and the soil must be moist. Next, wire hoops 12 to 14 inches high are placed 4 feet apart along the rows, and the tent paper is unrolled as a continuous strip over the hoops. The paper is anchored with soil drawn over the edges. On bright, sunny days when the temperature rises to 75°F or higher, ventilation must be provided by cutting holes 2 inches in diameter on the leeward side of the paper covering. As soon as the plants begin to crowd, the top of the cover should be opened gradually, a little every day for a week.

Cucumbers grown for pickling should be harvested every four days to guarantee continuous fruiting. Picking off all the fruits over $1\frac{1}{2}$ inches long from the plants at each harvest also stimulates heavier production.

Muskmelon and Watermelon

To produce satisfactorily muskmelons and watermelons require a warm growing season and a sandy loam soil. Shelter from strong winds in the form of good tree belts is also conducive to successful growth.

In many districts, transplanting increases the chance of ripening melons. The seed is sown indoors preferably in pressed soil blocks or jiffy pots. The soil blocks are made by a machine now available on the market. Jiffy pots are made of pressed paper and are generally available. Four melon seeds are sown in each container. As soon as the plants are growing well they are thinned to two to a block or pot. Covering the plants with paper protectors, after they have been set in the garden, favors early fruiting and maturity. Tent paper can be used in the same way as described for cucumbers. Hotents have been highly satisfactory in providing protection for melon transplants.

The best flavor and quality can be obtained by picking fruit that is well matured. Optimum maturity is indicated when the stem separates easily and without force from the fruit. Moreover, properly matured muskmelons are somewhat soft or spongy at the blossom end and have a pleasant ripe fruit odor.

Recognizing optimum maturity in watermelons is an art that develops with practice. When fruits are flicked with the forefinger and thumb a ringing sound indicates immaturity, and a dull thud, comparable to the sound obtained by flicking the sole of a shoe, suggests ripeness. If a watermelon is ripe, squeezing it firmly and gently with both hands will produce a dull cracking sound.

Pumpkin and Squash

These two vegetables are similar in their cultural requirements. Certain varieties of both are primarily for summer use, and others have special qualities for late season use. The summer varieties must be used soon after the fruits have set on the plants and while they are still quite immature. With the long cylindrical varieties the best stage is when the fruit is 4 to 6 inches long. Fruits 3 to 5 inches in diameter are best in the round scalloped varieties.

Late season squash and pumpkin must be full grown and thoroughly mature before they are harvested. The thumb-nail test for maturity is satisfactory. If the nail cannot pierce the rind, the fruit is ripe. The fruits should be harvested with care to prevent bruising. They keep best in storage if they are cured in a dry location at 70 to 75°F for 10 to 12 days. The final storage for squash and pumpkin must be dry and held at a temperature of 40 to 45°F.

Sweet Corn and Popcorn

Growing corn is not difficult if the directions in Table 2 are followed and suitable varieties are used. However, determining the proper time to pick sweet corn for fresh use or home canning is often a problem. Much depends on personal preference. While some prefer a firm consistency, the majority like a juicy type of corn. Ears of the latter type are best when the tip kernels have a dull surface and are pale yellow. To ensure top quality the corn should be used immediately after it is picked.

Popcorn may be properly grown and yet be disappointing because it pops poorly. This is because the ears are not thoroughly dried. The kernels should have approximately 12 per cent moisture for good popping quality. Where no particular provisions are made to dry popcorn after harvesting, it will pop satisfactorily a year after natural drying.

Savory Herbs

Herbs are sown in spring, about May 10. The seeds in most cases are small and should be placed from $\frac{1}{2}$ to $\frac{3}{4}$ inch deep. The seeded rows may be from 18 to 24 inches apart according to methods of cultivation used. When the seedlings are 2 inches tall they should be thinned to a spacing of 4 to 6 inches. Parsley, however, develops best when the plants are 12 to 15 inches apart in the row. Parsley plants and roots may be dried to be used later in soup or can be replanted from the garden into 6-inch pots and kept green in a sunny window for fresh use. The pots for the transplants must be well drained, and the plants should be cut back one third after planting to assure desirable growth.

With most herbs the leaves and young stems of the plants are used, and with others the mature stalks, flowers, or seeds. Many of the herbs retain their aroma and flavoring characteristics after drying and thus may be kept in a dry place for winter use. Cress or peppergrass is used for its leaves. With dill, a favorite for pickling, the entire plant is used. The leaves and flowers of sweet marjoram have particular value for flavoring meat sauces and dressings. Sage leaves are popular for flavoring meat and dressings. Although the sage plant is a perennial it is grown as an annual. Finally, the aromatic leaves and flowering branches of summer savory are used extensively to flavor salads, stews, and cooked vegetables.

Perennial Vegetables

Asparagus

Asparagus is grown for the succulent new stems that appear soon after the ground warms up in spring. The plants are hardy, easily grown and when established will persist for many years. They require a fertile and deep soil. Most good gardens or well-drained, cultivated areas prepared by manuring heavily and plowing deeply are satisfactory for planting. A 100-foot row of asparagus plants will supply the needs of an average family.

One-year-old asparagus roots are preferred for starting a new plantation. These may be purchased from nurseries or grown from seed sown in the garden. The seed is planted thinly, 1 inch deep, in rows 12 to 18 inches apart. The roots are left in the seeded row until the following spring. Since the roots are fleshy and succulent, they must be kept damp from the time they are dug until they are planted in a permanent location.

The asparagus plantation should be planted in the spring, as early as the condition of the ground will permit. Trenches 7 to 8 inches deep should be dug, and 2 to 3 inches of partly decomposed manure placed in the bottom. This should be covered with 1 or 2 inches of top soil, and then the asparagus roots should be placed $1\frac{1}{2}$ to 2 feet apart. They should be covered with 3 to 4 inches of soil and the soil firmed by tramping. During the season, cultivation will progressively fill the trench with soil as the plants develop.

The asparagus plantation will require care only during May and June, the harvest period, before the plants develop the customary bushy growth. Frequent hoeing and cultivating is necessary for weed control. Persistent perennial weeds may be eradicated by spraying with Monuron (CMU) at a rate of 2 pounds per acre. Spraying should be done immediately after a

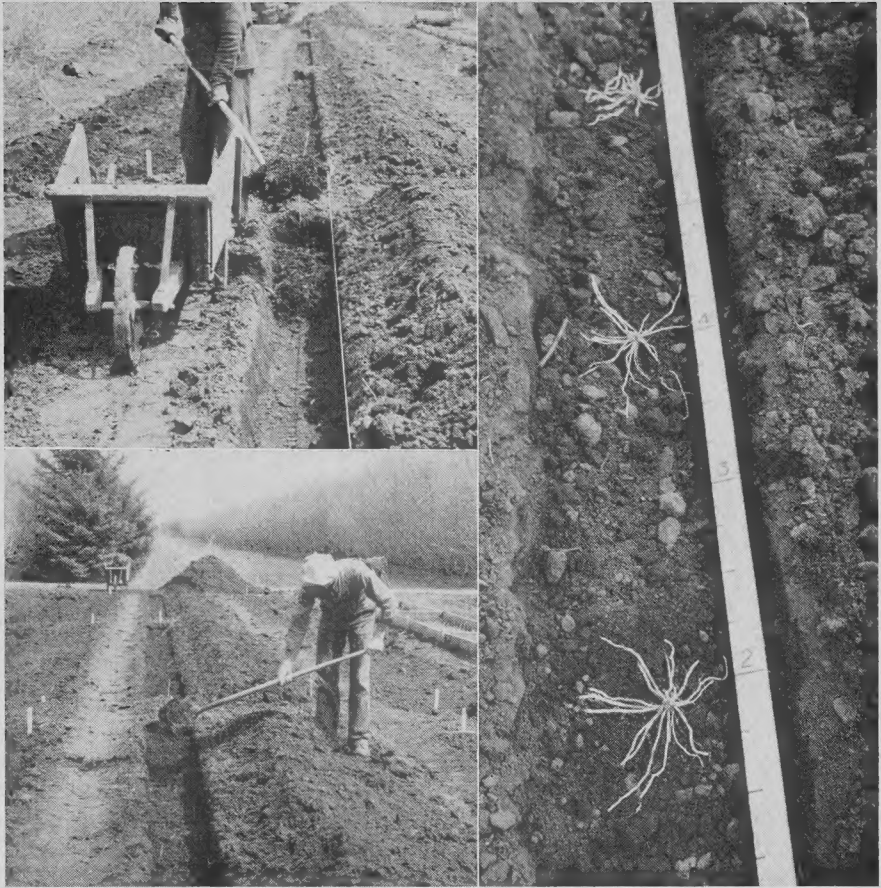


FIGURE 9—Upper left: A new asparagus plantation is started by digging a trench 8 inches deep and placing 2 to 3 inches of manure in the bottom. Lower left: The next step is to cover the manure with 3 to 4 inches of soil which is then firmed by tramping. Right: Finally, one-year-old roots are carefully placed two feet apart in the furrow and planted. The furrows are three feet apart.

harvest of stems is completed so that asparagus growth will not be affected by the spray. The use of fertilizers, particularly barnyard manure applied early in spring at the rate of 300 pounds per 100 feet of row, is recommended for increasing yields. Ammonium phosphate, 11-48-0, placed next to the asparagus plants at the rate of 5 ounces per 100 feet of row also encourages high yields of stems for cutting. The fertilizer may be applied with a garden seeder 4 inches to the side of the plants and 2 inches deep.

Irrigation, if available, is valuable in producing high yields of good asparagus. The application of 3 to 5 inches of water in addition to the normal rainfall is helpful, particularly during dry spring weather. A final thorough soaking of the soil after the last cutting in June promotes strong root growth, which is essential for a good crop the following season.

Harvesting in a new asparagus plantation should not begin until after three full seasons of growth. The first cutting in the fourth year must be light. This is essential for developing strong plants for the many years of

production that can be expected of a well-tended asparagus plantation. Harvesting in any season should cease completely toward the end of June. Asparagus is cut when the plant tips or stems are approximately 5 to 10 inches above ground and before the heads have begun to branch. A special asparagus knife with a blade and stem 5 to 9 inches long is available for harvesting. The blade is $\frac{3}{4}$ inch wide, sharpened at the end and slightly cleft. When cutting the stems, the knife is pushed partly into the soil at the base of the shoot. A straight blade knife can be used but is not recommended because of the damage that may be done to budding shoots that have not emerged. In most seasons asparagus is harvested every second day, although with good soil moisture and warm weather, it may be necessary to harvest daily to ensure good quality.

Rhubarb

Rhubarb is popular because the fleshy leaf stalks are ready for table use early in the season before other vegetables are available. The climate and most soils in the Prairie Provinces are naturally favorable for growing rhubarb. A deeply worked and rich soil is favored. Low soil areas where water will collect in the spring should be avoided.

Since rhubarb does not come true from seed, plants obtained from this source may be worthless. It is much better to plan root divisions taken from established varieties like Valentine and Macdonald. Each root division must have at least one crown bud. The plants are set in rows 4 feet apart and spaced 3 to 4 feet in the row with the crown bud just below the soil surface. Spring planting, preferably late in April or early in May, is best.

Harvesting should not begin before the second year from planting. This is essential to permit the root to become well established. When harvesting, several stalks may be removed from each plant once or twice a week but at no time should a plant be stripped bare. It is better to have more plants than the number required to supply the needs of the family, and to harvest a few stalks from each rather than remove many stalks from a few plants. Judicious harvesting will conserve the strength of the plants. Seedstalks develop on rhubarb in most years and should be cut off near the crown soon after they appear.

Chive

This perennial onion is ready for use early in the spring. Its slender stem-like leaves form a dense low-growing plant 10 to 12 inches high. Two or three well-grown plants will provide ample early greens for the average family. New plants are started by digging up old plants every three or four years and dividing them into small clumps for planting. They are planted 15 inches apart.

Horse-radish

Horse-radish is winter hardy and thrives in competition with grass and other plants. In some areas it has escaped cultivation and as a result it has become a troublesome weed.

Spring planting is best for horse-radish. Root sections, 8 to 10 inches long and about the thickness of a little finger, are used. These are placed crossways in trenches, 12 to 15 inches apart and $2\frac{1}{8}$ inches deep. Very little care is required to produce desirable plants.

The roots of horse-radish are used for relish-making or they can be packed in sawdust to be used fresh in winter. The plants are dug in late fall and the side roots trimmed from the large main root.

Flea Beetle and Root Maggot

In most seasons the flea beetle and the root maggot seriously affect a number of vegetables. These pests constitute one of the most important problems in home gardening.

The flea beetle often goes undetected because it is difficult to see on the plants. It is shiny, black, about the size of the head of a pin, and appears as soon as the seedlings emerge from the soil. It is very active and jumps when disturbed. When feeding on young plants it punctures the leaves and stems, and it is not unusual to find seedlings completely destroyed. The flea beetle may be controlled by dusting the small seedlings, as soon as they show the first signs of beetle puncture, with a DDT preparation. Flea beetles commonly attack radish, cabbage, cauliflower, turnip and beet.



FIGURE 10—Onion maggot damage. At this stage it is too late to apply control measures for the maggots.

Root maggots have been the greatest deterrent to onion production. They have been difficult to control because of their mode of attack on onion plants. The adult insect is a fly similar in appearance to the house fly, and lays its eggs about mid-June at the bases of the onion seedlings. Soon after the eggs hatch, the maggots penetrate the plants and hollow out the stems. By the end of June and in early July many plants destroyed by the maggots will have fallen over. Aldrin and methoxychlor have both been highly effective in the control of onion maggot at Morden. The chemical is dusted lightly on the soil immediately after the onion seed is sown.

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